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IN AID OF INTROSPECTION

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Introspection is neither an esoteric art which can be practised only by the initiated, nor an instinct placed by Nature in the breasts of all in order that the study of psychology might be possible. It is a scientific method. In spite of the inroads of Behaviorism, most of us still teach that introspection is a very important psychological method. How many of us accept the implications of our position and *teach* that method? Text books on laboratory psychology give elaborate instructions designed to help the experimenter to the necessary technique, while it seems to be assumed that the much more difficult art of the observer will be "picked up." Now everyone can introspect, just as everyone can observe birds or flowers or any other natural phenomenon. But *scientific* observation implies a technique. This article is an effort to state the outlines of this technique in a form understandable to students. While I shall make no effort to conceal my own psychological articles of faith so far as these have been formulated, I shall attempt to state the method of introspection in a way which will be acceptable to those who do not have the same point of view in general psychology. At the same time, I shall offer a view of introspection which will not be acceptable to many. This view of introspection (as distinct from my general psychological position) cannot be separated from my account of the technique of introspection. One further caution: much that appears here will seem hackneyed or obvious to the professional psychologist. It has not seemed hackneyed to my students, nor am I aware of any account of the technique of introspection addressed to such readers.¹

Introspection is a natural type of behavior. We all introspect frequently, just as we observe in other ways. For introspection is simply observing our own experiences. When we say "I feel warm," we have introspected. This may

¹ My obligations to G. E. Mueller and E. B. Titchener will be obvious to all who have followed the controversy aroused by Külpe's pupils. I owe much also to an unpublished laboratory manual by the late J. W. Baird.

or may not be scientific introspection, that is, observation which has complied with certain definite canons which make for accuracy and completeness.

The first difficulty is one of terminology. The words of daily life are woefully inadequate to scientific description. The first task of psychology is to refine terminology; the student's first task is to improve his power of distinguishing, classifying, describing, mental facts.

No real progress is possible in this task unless the student actually observes repeatedly the things described. The more you observe, the better you describe. The better you describe, the better you can observe and the more you will observe. This requirement is not peculiar to psychology. Compare the description of a flower made by the naturalist and the novice. Not merely is the first description clearer and more accurate in words; it is incomparably more complete in the details noted. To the beginner in any science, it seems discouragingly as if it were all a matter of "Words, words, words!" It is regrettable that we must spend so much time in the mere refinement of definition, but it is inevitable, not only for clear thought but also for complete observation.

Our next difficulty is that in psychology we do not observe things, but events or processes or happenings, the varying reactions of a mind or self to its environment. The thing you observe will not stand still while you watch. Indeed your watching is apt to make it change more rapidly; though one may add parenthetically that this last statement is by no means so universally true as would be implied from the majority of textbook discussions. The great trouble is not so much that introspection inhibits strong emotion, as that strong emotions tend to inhibit the introspective attitude. But the changing object of psychology is no peculiar difficulty. In many or most sciences, the object observed suffers changes rapid or slow. It is not inherently impossible to observe changing objects; it is merely more difficult. Laboratory devices may cause the object to change more slowly; increasing practice enables one to observe more and more of the swiftly moving panorama. One reason why students are introduced first to sensations rather than to affections is that they are relatively more stable, less swiftly moving. Finally we may take, as it were, moving pictures of the happening; each view is motionless, yet when taken in connection with others it closely simulates the real eventfulness of the experience. We may then proceed to examine a single view or snap-shot, to name the constituent features, to study their pattern or ar-

rangement. We may study the progress of these features from view to view. We must beware, of course, of thinking of mind as essentially thus a sort of kaleidoscope. The kaleidoscope is merely the way in which our minds represent and describe what is essentially a changing process.

It is further a unitary and not-divisible process, but this is not to say it is an unanalyzable one. I quote an illustration from Titchener;² a half-trained student reports in an experiment a feeling of "perplexity." Now perplexity is clearly a complex experience. A group of processes is present, some of which we can experience in other contexts, disjoined from each other. True, I have a fair idea of what he has experienced. But only a *fair* idea. The description should be so full and complete that one can imaginatively or sympathetically reconstruct the experience. Obviously, to say that you have "a feeling of perplexity" leaves much to the acuteness of one's imagination. Our first rule, therefore, is: *As far as possible, describe the constituent features of the experience in terms that resist further analysis. Describe in terms of part-processes which cannot be thought of as being themselves made up of smaller or simpler part-processes, or of part-processes found in other contexts.*

Is our task ended when we have completely described the momentary state of our experience in elementary or unanalyzable terms? By no means. Even Titchener, with his insistence upon the necessity of description as complete as possible in elementary terms, laments the current neglect of the durative or temporal aspect of experience. We must study the currents and eddies in the "stream of consciousness." Philosophers are not agreed whether we can directly observe change or can observe only sequence. The result is the same for our immediate purposes of psychological description and explanation. What we want is not merely the complete analysis of the isolated moment, but the movement of our experiences in time.

For psychology is not a purely descriptive science. We are not interested in description for its own sake. Psychology must help us to understand our complex selves, must supply the theoretic knowledge necessary to enable us to control our own behavior and that of others. To this end a description of the experience of a single moment, of a momentary snapshot of our experience, couched in elementary terms, is far

² E. B. Titchener, *Description vs. Statement of Meaning*, *Am. J. Psychol.*, xxiii, 1912, 167.

more useful than the average student is apt to realize. But it is not enough.

In the passage from which we quoted our illustration about perplexity, Titchener says that "the word 'puzzle' or 'perplexity' gives him the key to the observer's predicament, enables him to handle it, . . . but the word tells him nothing whatsoever of the observer's individual experience, of the particular 'feels' that constituted the perplexity in the particular case." Agreed! And we have just been arguing that the "particular feels" should be reported whenever possible. And yet if Titchener is right in saying that such an appellation as "perplexity" gives us "the key to the observer's predicament," do we greatly need the detailed analytic description? We do not want this description for its own sake, but precisely because it does give us "the import of the situation . . . enabling one to handle it." My criticism is that Titchener is too generous to the sort of report he is criticising. Such descriptive appellation is too crude a "key to the predicament" Analytic description would in most cases be much better. Yet just in so far as descriptive appellation does give us the "import of the situation" and enable us to handle it, it is very welcome.³ I therefore add a second rule: *In addition to analytic description, experiences which are rapidly changing should be characterized or communicated by descriptive appellations, laying stress upon the sequences and order of the part-processes.*

I think it is because this kind of observation has been—not omitted, for it abounds in every piece of introspection, but rather—scorned and rejected of psychologists, that we have the weakness of experimental psychology on the dynamic side, on the side that considers time as a real factor in mental life. An example will show my meaning. In a certain investigation of mine, one of the subjects was thoroughly impregnated with the doctrine that introspection must be exclusively in terms of elementary experiences. Page after page of very excellent introspective analysis of his consciousness did he give me. But the whole thing was somehow dead; it did not *move*. In his desire to get all the processes analyzed into their elements, he was precluded by a sort of negative abstraction from attention to and report on the growth and move-

³ It is possible that I have misinterpreted Titchener's meaning. The "predicament" of which he speaks may be wholly a laboratory predicament, the "key" merely a laboratory key. In any case I have to thank him for expressions so appropriate to the advantages of descriptive appellation.

ment of his experience. Only occasionally a statement about sequences would break through as it were surreptitiously. Analytic description is long and tedious. Be it never forgotten that it is invaluable; but a descriptive appellation can often give one a whole experience or some important part of it in a nutshell. And because it is so much briefer, it enables us so to observe the sequences that in the end we may get just that clue to the observer's predicament which is the common aim of both analytic and appellative description.

The danger of appellation is that we are tempted to infer analytic description from it. This we cannot safely do. These are parallel methods for arriving at explanation. Only where an appellation has been agreed upon as representing a certain analysis already made, may one justifiably draw any conclusions about "the particular feels in the particular case."

A further danger of characterization or appellation is the likelihood that it will be confused with interpretation. In my opinion, this is an overrated danger, but it exists. It is clearly illegitimate in your report of an experience to add one jot or tittle more than was in that experience. If, then, in your report, you add your interpretation of your experience, you have strayed from the truth. An example will suffice to show the nature of the error. In reporting the experiences incident upon rearranging a number of letters to make a word, an observer reported that "I shied off from that mass of consonants at the beginning, which could not possibly make a word." At best this is ambiguous. Did *O* mean that he framed more or less definitely the idea that such a mass of consonants could not make a word and that attention then shifted voluntarily to the end of the group? Cross-questioning brought out the true state of affairs: there was an easy non-voluntary shift of attention, following a slightly unpleasant perception of the many consonants. The whole clause "which could not possibly make a word" was an explanation after the fact. However true as explanation, such an interpretation is profoundly misleading if presented as a part of the consciousness of the given moment. Rule 3 therefore runs: *Include interpretation sparingly and always label it carefully as such.*⁴

As long ago as the 17th Century, Descartes called attention to the errors which slip into introspection, itself highly re-

⁴ The above account of interpretation differs materially from Titchener's. I confess I do not understand what Titchener and his pupils mean by the term, but they clearly include what I have illustrated above and more.

liable, because of a persistent tendency to shift unconsciously from attention to experiences into attention to external objects.⁵ As Titchener says, the error is both insidious and persistent. Introspection being defined as observation of one's individual experiences, everyone admits the impropriety of attempting to estimate the stimulus, which is an external thing. If introspection were to attempt judgments about the stimulus, its inadequacy would justify all the strictures that have been heaped upon it. How pitifully this pseudo-introspection falls short of accuracy, for example, in estimating the distance apart of two points of the esthesiometer! But that is not its proper task. What has introspection to do with physical measurements? Its task is to report on consciousness. In strict accuracy one ought to say, not "one point" or "two points," but "one pressure" or "two." No harm is done if it be clearly understood that "one point" as a report shall mean that the observer feels one clearly defined pressure. To insist otherwise would be to split hairs. Yet be sure you observe your convention. To slip over gradually into reporting "two points" whenever you *judge* that there were two stimuli leads to confusion. For such a report is not an unambiguous statement about your consciousness. You may have been aware of one pressure too large (so you judge) to have proceeded from one point. Yet according to your agreement with the experimenter, "two points" was to mean two distinct pressures; and this was not the case. On the face of the matter, the distinction seems trifling, but strict truth is never trifling. As a matter of fact, the failure to observe the distinction in this very experiment led to some very significant errors, and careful discrimination to their explanation. Rule 4: *Avoiding the "stimulus error," make no attempt to estimate the stimulus; confine your report to your consciousness, to your experiences. Nothing else is introspection; it is merely physical observation under difficulties.*

Rule 5: *Ordinarily describe experiences in their temporal order. But sacrifice this if necessary to catch some fleeting and elusive experience.* The advantages of this rule from the mere standpoint of convenience are too obvious to need comment. Its observance will also assist towards completeness.

Rule 6: *The experience or part of an experience selected for observation should not be too long, only a few seconds at the most.*

⁵ In his *Meditations*. See especially Meditation II, Everyman Ed., *Discourse on Method*, etc., 90.

This rule requires one or two comments. It is impossible for even the most practised observer to remember with sufficient accuracy and completeness the very complex happenings of a longer period than a few seconds. But many of the experiences which we desire to have described and explained take more time to their occurrence. If we stop the experience in mid course and commence to report on the part that has just taken place, we have no adequate guarantee that the experience would have gone on to the end that we suppose. If we allow the experience to terminate naturally, the observer is apt to forget the temporal course, to omit elements, and even to insert factors that were not present. One partial solution is to emphasize descriptive appellation, but as we have seen, this is often far from adequate. No single solution is possible. The writer believes that actual interruption of an experience should be resorted to with great caution. In all such cases, the experience should *previously* have been allowed to run its natural course. In most cases a satisfactory compromise may be reached by selecting certain portions of the experience for particular attention and report, while relatively neglecting the rest. If this be repeated often enough to allow of particular attention to each temporal part of the experience, an accurate picture of the whole can be obtained.

Rule 7: *Avoid "putative recollection."* This is a very common error among beginners and is frequently committed by those who should know better. It is the sort of alleged observation which begins with "Well, I guess I must have had" a visual image, or what not. Logical inference has its place in psychology. Less primary than introspection, it is possible that it is more important. But logical inference has no place in observation. It is fatal to observation. Of course guessing is much easier than observing, but science is not to be founded on such a basis. It is no disgrace to reply to the experimenter's question with "I don't know." But nothing so openly betrays your ignorance and inexperience as the attempt to conceal it by guessing.

So much for a few hints on the "How?" of introspection. But the "What?" has been treated as if it were entirely obvious. Of course this is far from being the case. It is likely that the student will be first set to observing experiences predominantly sensational. What are you to say about these experiences? First, you must be prepared to make a comparative statement about their attributes. Secondly, you must be prepared to state the patterns of combination into

which the elementary experiences enter. Now psychologists are not agreed as to just what attributes we can assign to the various kinds of sensations. As observers, therefore, we must keep an open mind. We must have in mind all the attributes which any competent person has alleged to belong to the sensation and see if we can find them. There are seven candidates which are commonly urged for the office of sensational attributes. These are quality, intensity, extensity, durance, local sign or order, temporal order, clearness. Of these the first two are obvious in every sensation. No one questions that every sensation has some particular quality. Your task in observing a relatively simple experience is to *identify* the several qualities which compose it. Intensity is another attribute which is obvious to our untutored observation.⁶ Here our problem is more difficult than with quality. Intensity is an attribute which carries from just more than zero to a maximum, while quality is strictly speaking invariable.⁷ Hence we must make some sort of comparative statement about the intensity; we must measure it in terms of some scale of intensities. This was once deemed strictly impossible, though we all make such reports whenever we compare the loudness of two sounds. The possibility of accuracy in such determinations is another matter and one which depends upon the development of experimental methods, among others upon the avoidance by the *O* of the stimulus error referred to above.

As implied above, quality and intensity are very simple attributes and are open to very unpractised introspection. This is not always the case with the others. Thus local sign, while easily identified in the field of touch, and without great difficulty in vision, as the not-further-analyzable factor which differentiates one touch from another, or one tiny speck from another precisely like it imaged on another part of the retina, —while easily identified in these cases, is with great difficulty to be found in others, if at all. For if it is found in other senses, it is in Watt's phrase "wrapt up in the complications and modifications which experiences produce upon one another." To discover an attribute thus wrapt up, familiarity with that attribute in other senses where it is more obvious is implied, and may even then be very difficult. Not infre-

⁶ Compare the illuminating discussion by H. J. Watt in the Introduction to *The Psychology of Sound*.

⁷ This is to say, when the quality changes, we have a different sensation. This makes quality in some sense fundamental to the other attributes, and so it is, as men have recognized in naming sensations from the qualities.

quently we are obliged to state the derived, complex attribute which we find in the experience (such as its localization, which is derived, it is now commonly believed, from local sign and extensity in combination). Nevertheless we must in each case question our sensational experience for the presence of each of the seven attributes given above. Extensity or volume, the primitive "bigness" of a sensation, and durance or the primitive "lastingness" are, like intensity, attributes which vary from just more than zero to a maximum (whether within the range of one sensation or not appears to be an open question) and hence our problem is to measure them. In actual practice we are accustomed to measure the derived attributes based on these, extension and duration, and students sometimes find some little difficulty in limiting themselves to the simple attributes.⁸ Local sign or order, and temporal order resemble qualities in that they do not vary from zero to a maximum. Yet these attributes, unlike quality, are quantitative, since they can be summed. Temporal order and durance are said by many psychologists to be derived, dependent upon the presence in consciousness of more than one sensation, and their uniform and necessary presence is denied. We may therefore question our experience as to whether these characteristics are present and if present as to whether they are simple.

Clearness is a characteristic of sensations whose systematic position is doubtful. These doubts need not concern us as observers. Every sensation has some degree of clearness and as introspectors it is our duty to determine how great this is.

There is yet another characteristic of many sensations, which is denied an attributive rank by most systematizers, but which should be reported on by the introspector in much the same way as the attributes. I refer to the hedonic tone or the amount of pleasantness or unpleasantness of the sensation. This point need not be labored, for it is the writer's experience that unpractised introspectors devote most of their energy to report on this factor.

We have then eight points on which to question our sensory experiences: quality, intensity, extensity, durance, local sign or order, temporal order, clearness, and feeling tone. At times, as was said above, the student will be unable to find these lying open to introspection, but will be obliged to report the presence of such derived attributes as show their presence indirectly. The two orders in particular are almost

⁸ The student will probably find most help in establishing the distinction in W. James, *Principles of Psychology*, II, 1890, 135.

invariably found as spatial and temporal localization, derived attributes depending upon the co-operation of two or more experiences.

However satisfactory this may be for the systematizing psychologist in proving the presence of the primitive attribute, it is unsatisfactory from the standpoint of the second duty laid upon the observer of sensational experiences. Not only must we report upon the attributes of the sensations present in a given experience, but we must report the pattern or scheme of combination of these sensations. We want to know precisely what primitive attributes go to make up these more complex attributes. What besides extensity does enable us to localize? What aspects of an experience take a dominating place in consciousness? "A recent writer has declared that the 'texture' of qualitative perception, due to the 'massing' of its sensory elements,—it is difficult to find words to indicate precisely what is meant,—may, in certain spheres, be as important in creating apparent qualitative differences as is the quality of the single sensation."⁹ Unfortunately little can be said to help the student in his effort to describe the pattern of these complexes beyond a renewed insistence upon the value of analysis, not as the end but as the beginning of this process.

It is time to give the student some encouragement. The number of things that seem to be required of him are many and the difficulties not slight. Were it not for one factor, the accomplishment of our task would be almost impossible. The intention to introspect, to attend to one's experience, materially facilitates its own task. Our powers of observing are heightened by direction of attention, especially with increasing practice and familiarity with the phenomena of the general kind to be observed. But in addition to heightening our power of observation, we get a sort of placing or classifying of the new experience in terms of familiar psychological rubrics or concepts. Sometimes the experience will be explicitly placed by means of a sentence in internal speech, sometimes there will be only a fleeting verbal gloss by means of which the new experience is assimilated to old and familiar classes. Often enough the chief instrument in such apperceptive classification (as it is called) is the name of the group to which the experience belongs. Thus Stricker writes: "When, after my experimental work, I proceed to its description, as a rule I reproduce in the first instance only words

⁹ E. B. Titchener, *A Text Book of Psychology*, 349, quoting E. Murray, *Organic Sensation*, in *Am. J. Psychol.*, xx, 1909, 446.

which I had already associated with the perception of the various details of the observation whilst the latter was going on. For speech plays in all my observing so important a part that I ordinarily clothe phenomena in words as fast as I observe them."¹⁰

Apperception may take place in non-verbal ways, though perhaps introspective apperception is more effective if in words. Sometimes the experience is apperceived while it is running its course; more often, with the unpractised subject, it takes place immediately afterward.

Closely allied to this is a phenomenon which is probably most familiar in the field of hearing. You say something "back-end-to" and people laugh. Suddenly you realize with startling vividness what you have just said. It is not a peripheral thing like the after-images of vision and touch, which are more properly called after-sensations, yet it is more like these than ordinary memory or fancy images. Now under the influence of the intent to observe, a great proportion of our experience can be preserved in a memory after-image of this sort. Under experimental conditions it is highly reliable and greatly facilitates that completeness of report which would otherwise be so difficult.

It has been assumed in the foregoing that the reader is familiar with the general conditions necessary to any observation; care, accuracy, honesty, etc. The discerning cannot have failed to notice, however, the constant stress laid upon practice and the intention to observe the psychological facts. Indeed this intentional direction of attention, and the implied familiarity with the general nature of the phenomena to be observed, are the secret of valuable introspection. I began by saying that anyone can introspect. I conclude by urging that the value of one's introspection is almost directly proportionate to one's habitude. Anyone with a good memory and a sincere desire to improve can learn to introspect in a way which will be of distinct scientific usefulness.

¹⁰ Quoted by Wm. James in *Psychology, Briefer Course*, 1892, 309.